XXIII. *Extract of a Letter from the Rev.* James Auguſtus Hamilton, *M. A. to the Rev.* Nevil Maſkelyne, *D. D. F. R. S. giving an Account of his Obſervation of the Tranſit of Mercury over the Sun, of Nov.* 12, 1782, *obſerved at* Cook's-Town, *near* Dungannon, *in Ireland.*

Read April 20, 1783.

Cook's-Town in Ireland,
Nov. 16, 1782.

SIR,

FROM the very indulgent eye with which you regarded my aſtronomical wiſhes, when I had the pleaſure of ſeeing you at Greenwich, I make no doubt of your pardon for offering my imperfect efforts towards obſerving the late tranſit of Mercury. I do not mean to trouble you with the peruſal of the labours of the week, but only to ſtate to you my general apparatus and reſults, and to requeſt your kind communication of your obſervation of the ſame phænomenon, if it occurred at Greenwich. I have only a good common clock with a varniſhed deal pendulum, moving ſidereal time; a tranſit-inſtrument, of four feet eight inches focal diſtance, with a triple object-glaſs, and the axis of two feet, on ſolid ſtone pillars, the baſe common to both, each pillar being a ſingle ſtone of five feet high: the collimation is conſtantly attended to, and was examined a day or two preceding the tranſit by an obſervation of the * polar ſtar (the

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* The weather being hazy prevented the horizontal meridian mark being diſtinctly obſervable.

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only circumpolar one my ſituation enables me to ſee an intire revolution of) and I found on inverting the axis that the error of collimation amounted to only 2″ of time at the polar ſtar. By an obſervation of the ſun's paſſage before the tranſit, the clock was ſlow − 21″,7; and by an obſervation of the paſſage of Lyra corrected ſtrictly by your tables, after the ingreſs of Mercury, the clock appeared to be 21″,4 ſlow, its rate for the week loſing 1″,5 *per* revolution. I obſerved with an achromatic tube of three inches aperture, triple object-glaſs, and uſed a magnifying power of about 90 times, which I preferred on account of the ſtate of the atmoſphere. At about two o'clock I ſet a ſtop watch to apparent ſolar time, and placed myſelf at the teleſcope within hearing of the beat of the tranſit-clock. I kept the part of the diſk where I expected the ingreſs in conſtant view, my ſight being directed by a vertical wire in the eye-tube, and at 2 h. 22′ 3″ I ſtopped the watch, and counted 20″, to be ſure of my having really perceived the firſt impreſſion (which I apprehend could not have been ſhewn 1″ ſooner by the power, &c. I uſed). I then ſtopped ſeconds to the clock, and counted up to an even minute, and found, that the firſt external contact happened at 17 h. 33′ 11″ by the clock, or 2 h. 21′ 45″ apparent time. Mercury came in like a diſtinct black point, without any preceding hazineſs or appearance of atmoſphere; and at 17 h. 39′ 10″ by the clock, or 2 h. 27′ 43″ apparent time, the thread of light ſeemed compleated, and then I date the internal contact. I had no inſtrument fit to take any micrometer meaſures, ſo continued only looking at the planet till the ſun got ſo low, that the limb preſented the appearance of a troubled ſea at a diſtant horizon, among the waves of which Mercury once more plunged at about 18 h. 52′, and the ſun and planet both left my view at about 18 h. 57′; but theſe obſervations are only good conjectures. From my beſt obſervations of eclipſes of Jupiter's firſt ſatellite, of appulſes of the moon's centre to the meridians, and lunar diſtances with a HADLEY's quadrant, I make my longitude 26′ 35″ W. (nearly), and my latitude by a mean of many obſervations, is 54° 38′ 20″.

I have the honour to be, &c.